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Federal Wage System
Job Grading Standards

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FEDERAL WAGE SYSTEM JOB GRADING STANDARD FOR PIPEFITTER, 4204

Workforce Compensation and Performance Service

Theodore Roosevelt Building • 1900 E Street, NW • Washington, DC 20415- Classification Programs

COVERAGE OF STANDARD

This standard is used to grade all nonsupervisory jobs involved in the installation, maintenance, and repair of high temperature water and high-pressure piping systems such as hydraulic, nitrogen, oxygen, steamheating, and steam-generating systems.

JOBS NOT COVERED BY THIS STANDARD

Jobs involved in the installation and repair of utility, supply, and disposal systems (for example, sewage, water), fixtures and equipment, or installing pipe insulation materials, as a primary assignment, are not covered by this standard.

TITLES

Jobs covered by this standard are to be titled *Pipefitter*.

GRADE LEVELS

This standard defines only that grade that reflects the more commonly found level of work in the occupation. It does not describe all possible levels at which jobs might be established. If jobs differ substantially from the skill, knowledge, and other work requirements described in the grade levels of the standard, they may warrant grading either above or below those grades. If lower than journeyman level pipefitting jobs are found, they will be graded by this and the Plumber, 4206, job grading standard.

HELPER AND INTERMEDIATE JOBS

Jobs that are part of a planned program of training and development for advancement to a higher grade are graded by the job grading standards for Trades Helper and Intermediate Jobs.
(Grade 10 in this standard is to be used as the "journey level grade" in applying the Intermediate Job Grading Table.)

4204-10 PIPEFITTER, GRADE 10 4204-10

General: The work involves installing, modifying, and repairing new and existing high-pressure piping systems and equipment such as steamheating, steam generation, and hydraulic systems, steam generators, flash and expansion tanks, condensate, vacuum, and circulating pumps, and radiators. The pipefitters work from building plans, blueprints, and sketches to plan and lay out the routing, placement, pitch, elevation, pressure reduction, expansion, and operation of various piping systems and equipment. They install, modify, and repair systems like those described above by setting up system routes, placing and cutting route openings, placing hangers for proper pitch and elevation, and determining and installing such things as risers, flexible branches, expansion joints, pumps, gauges, and pressure regulators in the combination needed to support the pressures of the systems and that ensure the proper operation of the systems. The pipefitters also install equipment like that described above by planning and completing the routing and placement of systems leading to the equipment, determining and placing the equipment at the proper levels and points in the systems, and joining, sealing, and testing systems and equipment for proper pressures, leak-free joints, and operation.

Skill and Knowledge: The pipefitters are required to have a knowledge of how various high-pressure piping systems and equipment, such as steamheating, steam generation, and vacuum systems, radiators, and circulating pumps, are installed and operate. For example, the pipefitters must know how relief valves, check valves, pressure regulators, expansion joints, and other pressure supporting and controlling devices are installed and how they operate to control increases and decreases in pressure, flow, circulation, and expansion in the systems. The pipefitters must have the ability to plan and lay out the installation, modification, and repair of various new and existing piping systems and equipment. The pipefitters, for example, must be able to lay out and install various kinds of piping, risers, and flexible branches at the proper level and incline; determine the placement and elevation and install steam generators, vacuum and condensate pumps, and radiators; and replace heat exchangers, flash and expansion tanks, and automatic and manual control valves. The pipefitters must have the ability to interpret and apply building plans and blueprints, and to use shop mathematics to lay out angles, arcs, and circles. The pipefitters must have skill in any of the accepted trade methods and techniques, for example, figuring pipe, joint, and valve sizes needed to support pressures of systems, aligning pipes, valves, fittings, and joints for accurate match, and installing proper braces and supports to control movement and vibration and allow for expansion and contraction. The pipefitters must also have skill in the use of tools and equipment such as sliding squares, measuring tapes, dividers, chalklines, plumb bobs, templates, star drills, grinders, flangers, hand and power pipe threaders and cutters, and pipe wrenches.

Responsibility: The supervisor assigns work orally and through work orders, building plans, and blueprints. The pipefitters plan and lay out the needed routing, placement, pitch, incline, and elevation of systems and equipment. The pipefitters figure pressures in the systems and see that the piping, valves, fittings, and equipment are proper for the work. The pipefitters complete installations,

modifications, and repairs with little or no check during their progress or upon completion. The pipefitters test systems and equipment after completing work for proper

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circulation, flow, pressure, and leak-free joints. The supervisor checks the pipefitters' overall work to see that it meets accepted trade standards.

Physical Effort: The pipefitters make repairs and installations from ladders, scaffolding, and platforms, and where the systems and equipment worked on are in hard-to-reach places. This requires the pipefitters to stand, stoop, bend, kneel, climb and work in tiring and uncomfortable positions. The pipefitters frequently handle, lift, carry, and set up parts and equipment that weigh up to 23 kilograms (50 pounds). Occasionally, the pipefitters may lift and carry items that weigh over 23 kilograms (50 pounds).

Working Conditions: The work is done inside and outside, and is usually dirty, dusty, and greasy. The pipefitters are sometimes required to make installations and repairs in areas where bad smelling fumes are present. There is frequent exposure to the possibility of uncomfortable heat conditions. The pipefitters are frequently exposed to the possibility of strains, cuts, scrapes, bruises, burns, and infections. They are occasionally exposed to the possibility of broken bones.

United States
Office of Personnel Management

FWS Job Grading Standard for

Plumber

4206

TS-6, 3/69

Workforce Compensation and Performance Service
Office of Performance and Compensation System Design
Classification Programs Division
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COVERAGE OF STANDARD

This standard is used to grade all nonsupervisory jobs involved in the installation, modification, and repair of utility, supply, and disposal systems, fixtures, fittings, and equipment such as sewage, water, gas, and oil lines, compressed air, vacuum, and acid systems, water closets, water heaters, hydrants, valves, and pumps.

JOBS NOT COVERED BY THIS STANDARD

Jobs that involve installing and repairing steam and high-pressure hot water and fuel distribution systems, or installing pipe insulation materials, as a primary assignment, are not covered by this standard.

TITLES

Jobs covered by this standard below the grade 9 level are to be titled *Plumbing Worker*.

Jobs covered by this standard at the grade 9 level and above are to be titled *Plumber*.

GRADE LEVELS

This standard does not describe all possible levels at which jobs might be established. If jobs differ substantially from the skill, knowledge, and other work requirements described in the grade levels of the standard, they may warrant grading either above or below those grades.

HELPER AND INTERMEDIATE JOBS

Jobs that are part of a planned program of training and development for advancement to a higher grade are graded by the job grading standards for Trades Helper and Intermediate Jobs. (Grade 9 in this standard is to be used as the "journey level grade" in applying the Intermediate Job Grading Table.)

4206-7 PLUMBING WORKER, GRADE 7 4206-7

General: The work at this grade involves making repairs that can be accomplished by removing, cleaning, replacing, packing, and sealing defective parts of utility, supply, and disposal systems such as dirty traps, sections of broken tile pipe, and leaky drains. The grade 7 plumbing workers receive work orders, oral instructions, and sketches that provide specific information on the work to be done, for example, where the work is to be done, the kind of repair to be made, and the materials that will be needed. The plumbing workers complete needed repairs like those described above and hook up to installed systems such things as water heaters, disposal units, and faucets.

Skill and Knowledge: At this grade, the plumbing workers must have a knowledge of standard plumbing methods and techniques. For example, the plumbing workers must know how to measure, cut, bend, and thread pipe and tile, and how to caulk and seal such things as elbows, union joints, tile pipe,faucets, and shower drains. The plumbing workers must have the skill needed to remove, clean, reinstall, or replace joints and fixtures, for example, traps, faucets, and unions. The plumbing workers must also have the skill needed to hook up equipment (for example, water heaters and disposal units) to installed systems, and replace sections of pipe and tile by following previously-used routes, hangers, and levels. The plumbing workers must have the ability to add, subtract, multiply, divide, and work with simple fractions. The plumbing workers must also have skill in the use of tools and equipment such as tapes, rules, hacksaws, hand and power pipe threaders and cutters, packing and caulking irons, and pipe wrenches.

Responsibility: A higher grade worker or supervisor assigns work orally or through work orders and sketches. The plumbing workers select tools, decide on methods and techniques to use, and carry out the work with little check during its progress. The plumbing workers use materials that are specified in work orders, or obtains replacement parts, such as unions, traps, and elbows, by comparison with samples. The plumbing workers also measure, cut, bend, and thread pipe and tile according to measurements specified in work orders or sketches, or by measurements taken from samples. The plumbing workers install equipment, such as water heaters and disposal units, and replaces sections of pipe and tile by following exactly previously used routes, openings, hangers, and levels and reconnecting equipment units to already-installed systems. A higher grade worker or the supervisor gives advice on unusual problems, and checks to see that completed work meets requirements.

Physical Effort: The plumbing workers make repairs and installations from ladders, scaffolding, and platforms, and where the parts of systems worked on are in hard-to-reach places. This requires the employees to stand, stoop, bend, kneel, climb, and work in tiring and uncomfortable positions. The plumbing workers frequently lift, carry, and set up parts and equipment that weigh up to 18 kilograms (40 pounds).

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Working Conditions: The work is done inside and outside, and is usually dirty, dusty, and greasy. The plumbing workers are sometimes required to make repairs and installations outside in bad weather. The plumbing workers occasionally make repairs in areas where bad smelling fumes are present. The plumbing workers have occasional exposure to the possibility of broken bones. The employees also have frequent exposure to the possibility of scrapes, burns, and infections.

4206-9 PLUMBER, GRADE 9 4206-9

General: The work at this grade involves installing, modifying, and repairing new and existing utility, supply, and disposal systems and equipment such as sewage, water, oil, and gas distribution systems, and water closets, tubs, fire sprinkler systems, and showers. The grade 9 plumbers work from building plans, blueprints, and sketches to plan and lay out the routing, placement, slant, slope, fall, and proper operation of systems and equipment. The plumbers install, modify, and repair systems like those described above by locating and tapping main lines, setting up system routes, placing and cutting route openings, placing hangers for proper level and slope, and determining and installing valves, traps, and unions needed for proper operation of systems. The plumbers also install equipment like that described above by completing the routing and placement of systems leading to the equipment, and seating, hooking up, and testing the equipment.

In comparison with the plumbing workers at grade 7, the plumbers at grade 9 must have a greater knowledge of the operation of various systems and equipment, and of how they are placed, slanted, and sloped. The grade 9 plumbers also have greater responsibility than the grade 7 plumbing workers for the planning, layout, and completion of installations, modifications, and repairs with little or no advice. The supervisor checks work only to see that it meets accepted trade standards.

Skill and Knowledge: At this grade, the plumbers must have a knowledge of how various supply, disposal, and utility systems and equipment, such as water and gas systems, fire sprinkler equipment, and water closets, are installed and operate. The plumbers must have the ability to plan and lay out the installation and modification of various systems and equipment, for example, the routing, openings, slant, and level of gas and water lines, and the location and arrangement of water closets, sinks, and fire sprinkler equipment. The plumbers must have the ability to interpret and apply building plans and blueprints, use shop mathematics, and lay out such things as angles, arcs, and circles. The plumbers must have skill in the use of any of the accepted trade methods and techniques, such as wiping and pouring lead joints, seating equipment, and installing any combinations of couplings, unions, and joints needed for the proper operation of the systems. The plumbers must also have skill in the use of tools and equipment such as plumb bobs, mercury gauges, dividers, closet augers, hydrostatic pumps, and lead pots.

Responsibility: The supervisor assigns work orally, and through work orders, building plans, and blueprints. The plumbers plan and lay out the needed routing, placement, slant, slope, and fall of systems. The plumbers determine that parts (for example, pipe, reduction couplings, elbows, traps, and valves) are the proper kind and size. The plumbers also complete installations, modifications, and repairs with little or no check during their progress or upon completion. The plumbers test and make needed adjustments to systems and equipment, after completing the work, for proper operation, flow, drainage, and sanitary conditions. The supervisor checks the plumbers' overall work to see that it meets accepted trade standards.

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Physical Effort: Physical effort at this grade is the same as that described at grade 7.

Working Conditions: Working conditions at this grade are the same as those described at grade 7.